



AMG-15

HLA Evolution Process

9 October 1996



Basis for HLA Evolution

- **Changes/enhancements should be based on issues raised by users of HLA**
- **Changes need to be evaluated in terms of benefits to the HLA user community**
- **AMG is the focus for evolution including identifying issues, evaluating options for addressing the issues, and approving changes**
- **As other programs begin implementation of HLA, they need to be represented in the AMG process**



Organization to Support Evolution

- Working groups established to support baseline development have been phased out
- Replaced by ad hoc teams formed around specific issue areas
 - focused, time-bound, task-oriented teams
- TST members will be designated as focal points for key areas, they will form the core of the TST, and the TST will be the vehicle for integration across areas
- Current focal points are:
 - Bob Lutz: OM
 - Reed Little: IF Spec
 - Richard Fujimoto: TM
 - Katherine Morse: DDM



Regular HLA Checkpoints



- The six month cycles discussed as part of HLA transition will serve as routine checkpoints in the HLA process
- One month prior to each checkpoint
 - progress of issue investigations will be checked
 - proposed changes in architecture and impact on specification will be evaluated
 - draft changes in specifications will be prepared for AMG review
- Focal points will be responsible for drafting and integrating changes across the specifications
 - includes identifying and coordinating changes via the TST
- Checkpoints also provide timing for more marginal changes in specifications (e.g. deleting parameters)
 - Specs have comment forms; these will be maintained by DMSO and coordinated via the TST

Question: Is timing of the checkpoints appropriate?



Five Step Process



- **Step 1: a program expresses a need for a capability**
- **Step 2: a summary issue paper and investigation plan is developed**
- **Step 3: plan is executed and AMG monitors progress**
- **Step 4: recommended changes to HLA spec are drafted**
- **Step 5: AMG reviews recommended changes**



Step 1: Program Need

- Process begins with a need identified by a program implementing HLA
- Program provides a description of what its specific requirements are and why the HLA does not meet those requirements
 - program may provide ideas of ways to evolve HLA to meet this need
- DMSO/TST
 - works with the program to review the need to ensure that current HLA capabilities are not adequate
 - assess the extent to which this need applies to other programs implementing HLA

Where the need cannot be met by the HLA and is one which applies to other users of the HLA, then proceed to next step----->



Step 2: General Issue Paper and Investigation Plan

- **DMSO TST drafts a general issue paper which describes the issue in a way that goes beyond the initiating program requirement**
 - may require bringing in other technical expertise in the area and coordinating with other programs with similar applications
- **DMSO forms an ad hoc team (IPT-like) to detail the issue and identify options for addressing the issue**
 - include a TST focal point who will be responsible for coordinating activities in this area with the other HLA investigations
- **Investigation plan will identify timelines in conjunction with HLA checkpoints, to allow for synchronization of resolution of ongoing issues in a coordinated fashion**

Once issue is approved, and plan is in place, proceed to next step---->



Step 3: Plan Execution

- The issue team will proceed on the schedule laid out in the investigation plan
- The AMG will be kept apprised of progress
 - Important for efficient, yet broad based HLA evolution
- As the investigation proceeds
 - The issue may become better understood and the issue paper may be updated
 - The team may recommend the issue be dropped based on the results of the investigation
 - New issues may be identified which would be addressed in their own right

The investigation may lead to a recommended change in the HLA specification, and then process proceeds to the next step--->



Step 4: Draft Recommended Changes to HLA Specification

- The team will draft recommended changes to the HLA specification
- The TST focal point will coordinate these changes and integrate results into the AMG recommended changes for consideration at the next HLA checkpoint

Recommended changes go to the AMG for review and consideration, the next step in the process ----->

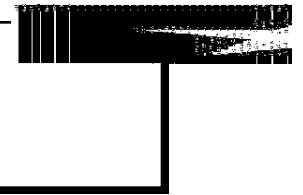


Step 5: AMG Reviews Recommended Changes

- **The AMG reviews the proposed changes**
- **The benefits of the changes are assessed along with the costs of making the change**
- **The changes are then**
 - **approved for immediate incorporation,**
 - **approved for incorporation at a later checkpoint**
 - **held for later consideration,**
 - **sent back for further investigation, or**
 - **disapproved**



Current Issues Related to HLA Evolution



- **API**
 - Adding a more O/O API
- **Federation Management**
 - Linking federations
 - Multiple RTI connections per federate
- **Time Management**
 - DDM and logical time
 - Ordering of simultaneous events
- **Multiple Inheritance in OMT**



Issue Papers and Investigation Plans

- **We are proceeding with these issues based on prior discussion by the AMG**
- **Issue papers are being drafted**
 - **Description of the issue**
 - **description of the functionality required and why it cannot be supported with current capabilities**
 - **Description of how the functionality would be used (two examples)**
 - **Identification of specific simulations which would use the functionality if available**
- **Investigation plans are already initiated for several issues**
 - **DDM and logical time**
 - **Federation management**



Experience Gathering

- **Beyond these specific issues, the AMG provides a forum for monitoring HLA technical transition based on experiences of AMG member programs**
- **In particular, user support areas for concentration are**
 - **Data (common syntax and semantics) and the HLA OMs**
 - **OM development support**
 - **RTI user support**
- **These will be regular topics for AMG discussion and consideration**
- **Efforts have been initiated to build an experience base in DDM**
 - **DDM supporting technical paper in preparation**
 - **STOW experience**
 - **Perceptronic lab based investigation**



Next Steps

- **Issue papers will be distributed for AMG review and comment**
- **Investigation plans will be briefed to the AMG**